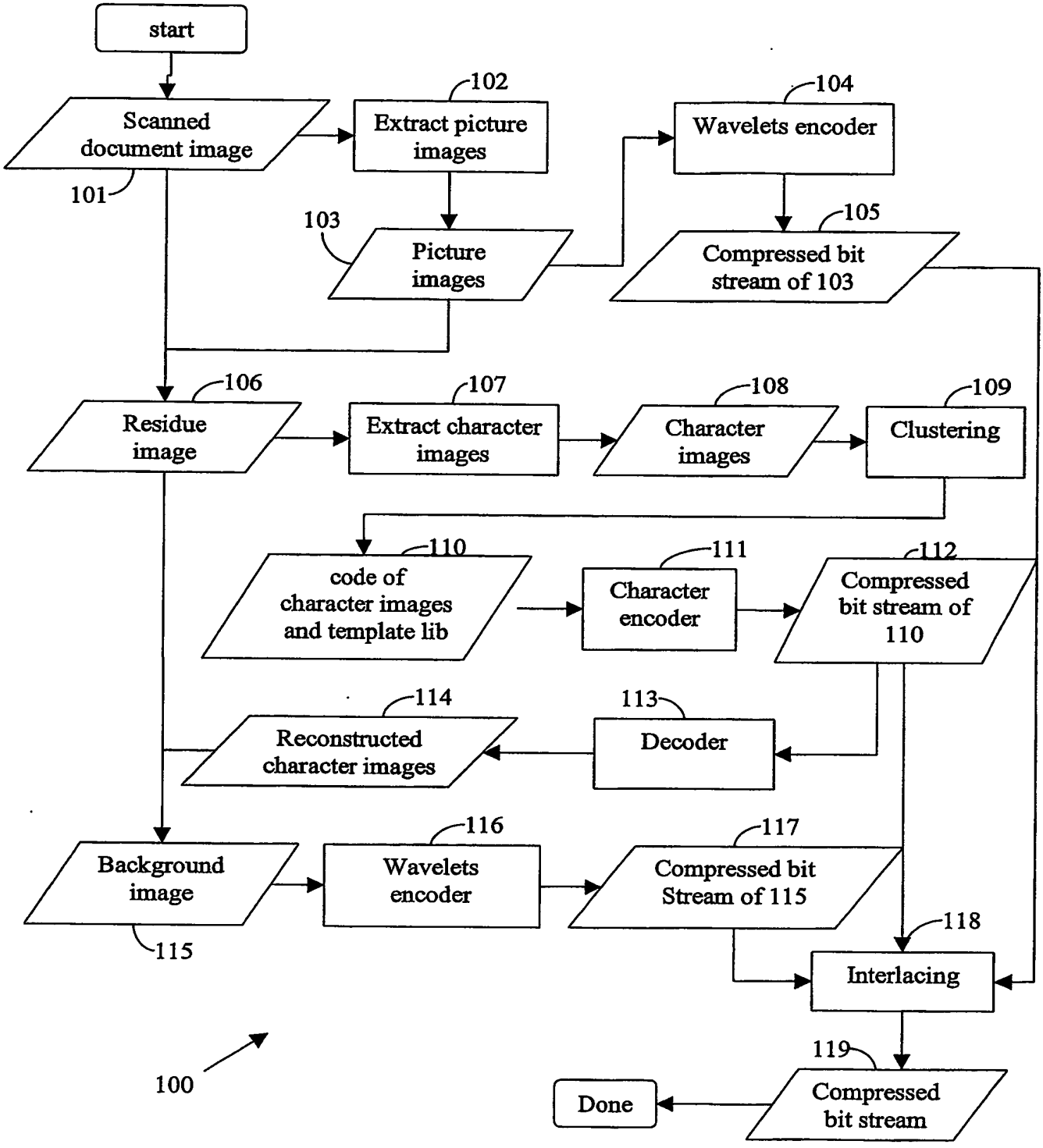
start
Scanned document image
101
Extract picture images
102
Picture images
103
Wavelets encoder
104
Compressed bit stream of 103
105
Residue image
106
Extract character images
107
Character images
108
Clustering
109
code of character images and template lib
110
Character encoder
111
Compressed bit stream of 110
112
Reconstructed character images
114
Decoder
113
Background image
115
Wavelets encoder
116
Compressed bit Stream of 115
117
Interlacing
118
Compressed bit stream
119
Done
100

Figure 1

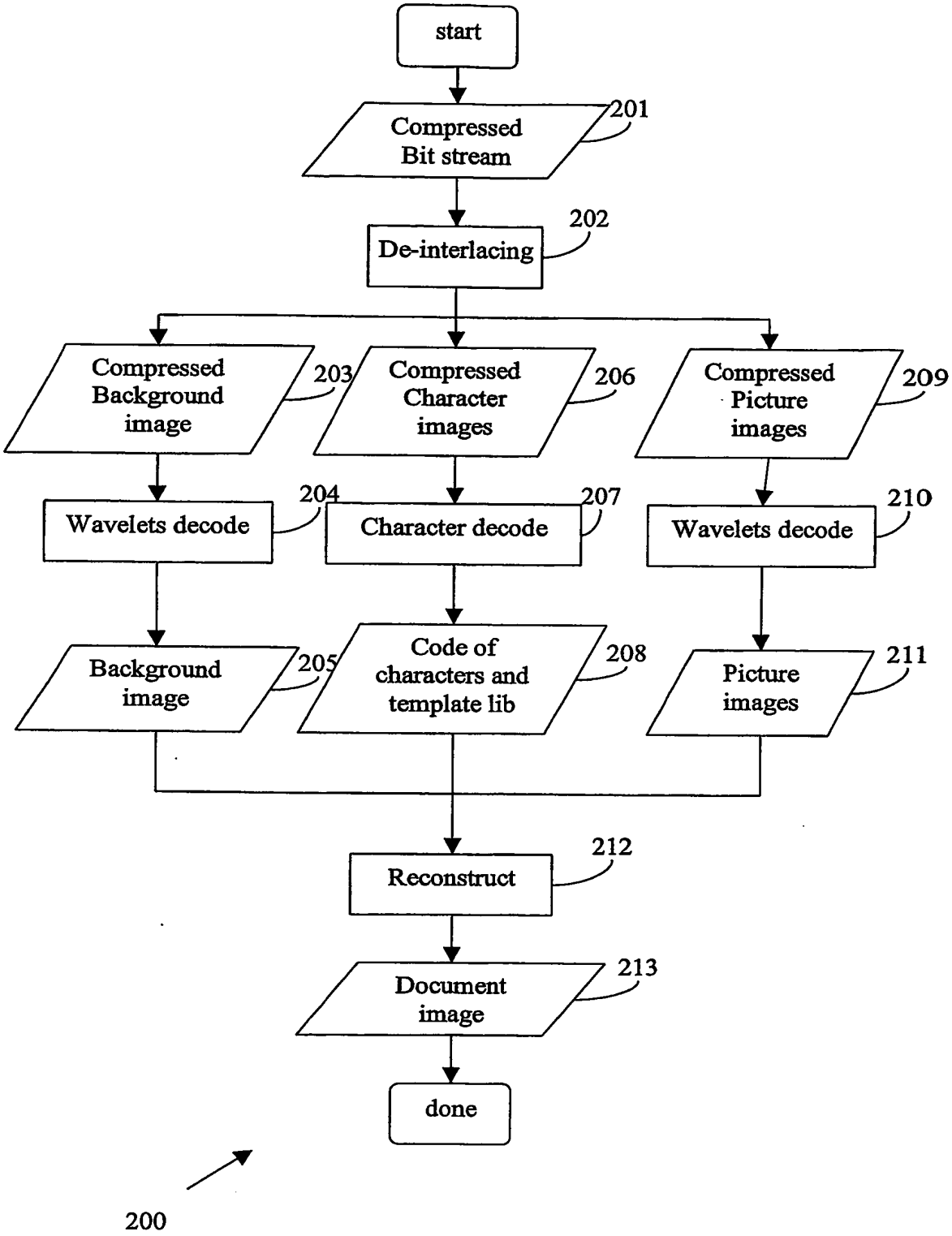
start
Compressed Bit stream
201
De-interlacing
202
Compressed Background image
203
Compressed Character images
206
Compressed Picture images
209
Wavelets decode
204
Character decode
207
Wavelets decode
210
Background image
205
Code of characters and template lib
208
Picture images
211
Reconstruct
212
Document image
213
done
200

Figure 2

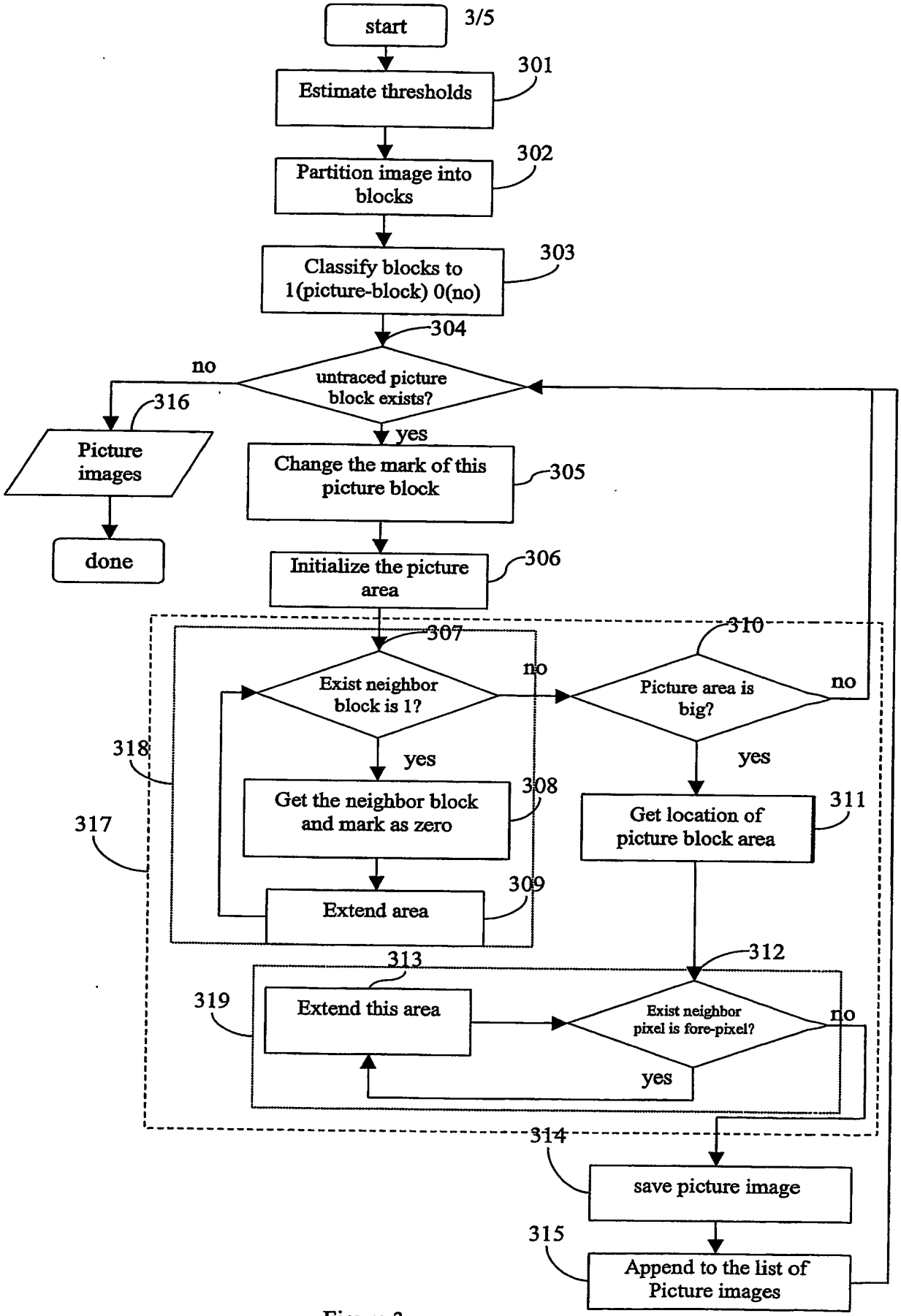
start
3/5
Estimate thresholds
301
Partition image into blocks
302
Classify blocks to 1(picture-block) 0(no)
303
304
untraced picture block exists?
no
316
Picture images
done
yes
Change the mark of this picture block
305
Initialize the picture area
306
307
Exist neighbor block is 1?
no
yes
318
Get the neighbor block and mark as zero
308
317
Extend area
309
310
Picture area is big?
no
yes
Get location of picture block area
311
312
313
319
Extend this area
Exist neighbor pixel is fore-pixel?
no
yes
314
save picture image
315
Append to the list of Picture images

Figure 3

L_0 is the list of character image blocks
L_1 is the list of code information of character image blocks
L_2 is library of character templates

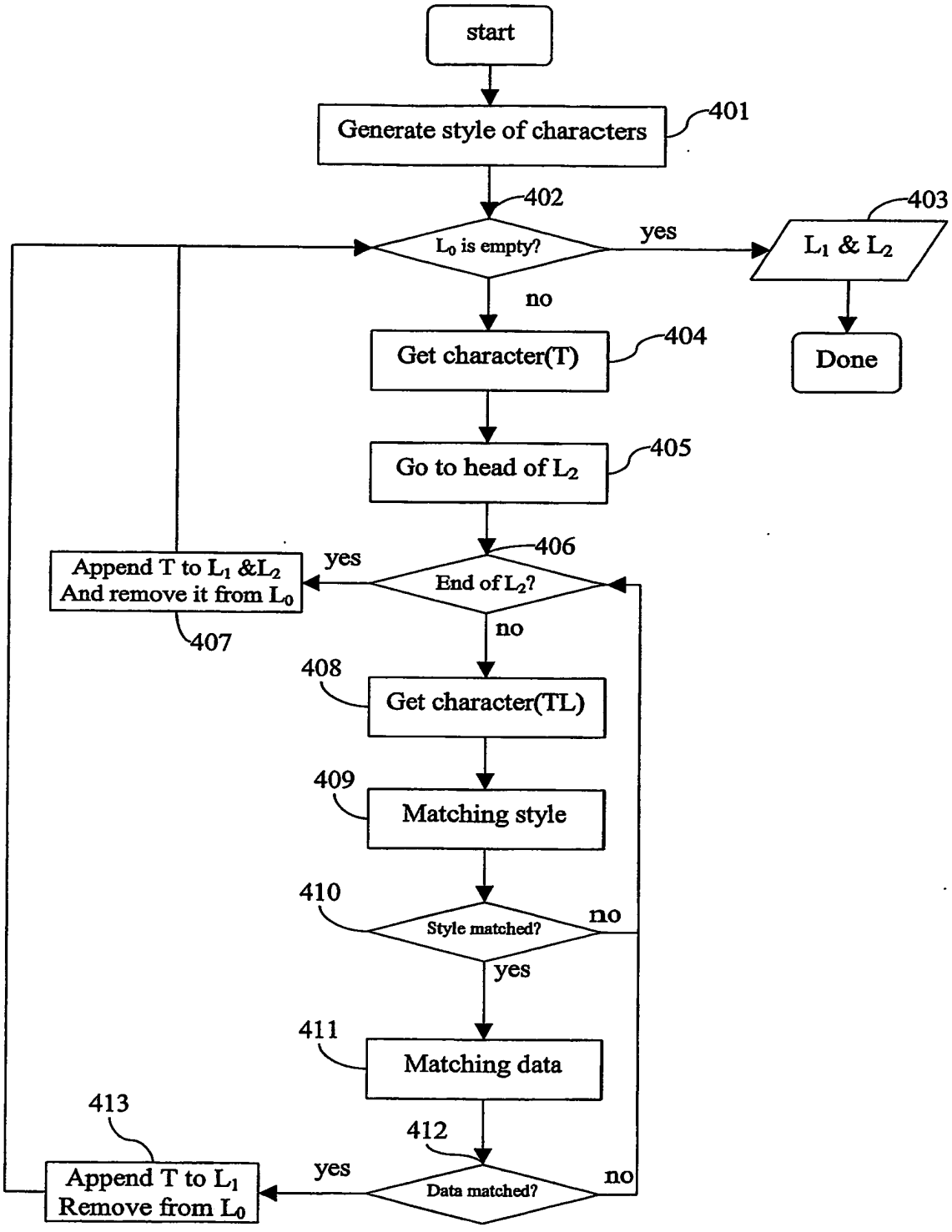

Figure 4

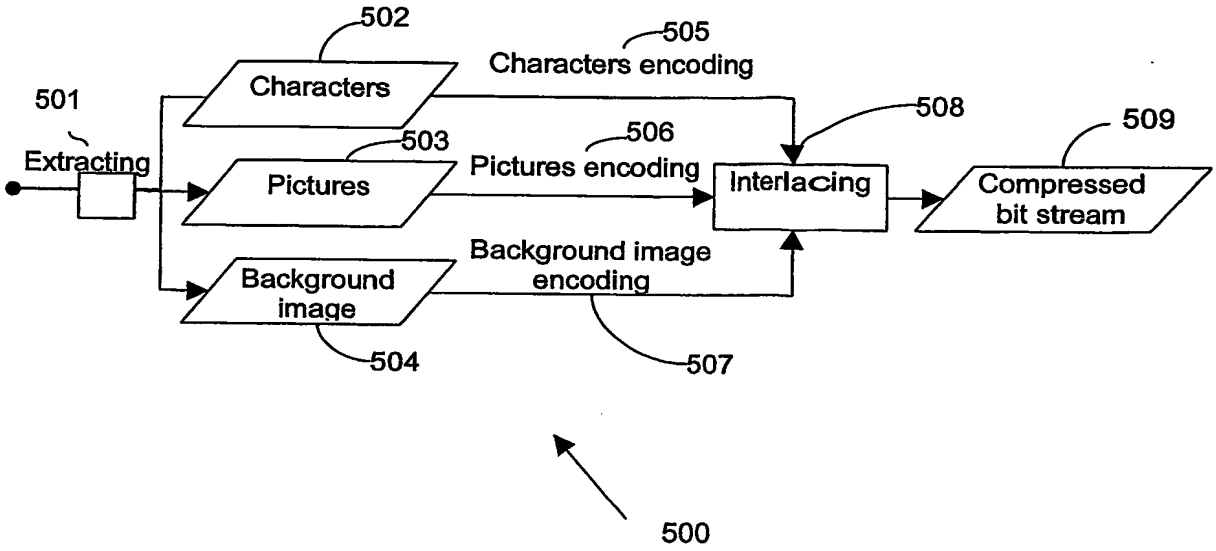
502
505
Characters encoding
Characters
501
508
509
Extracting
503
506
Pictures encoding
Pictures
Interlacing
Compressed bit stream
Background image encoding
Background image
504
507
500

Figure 5